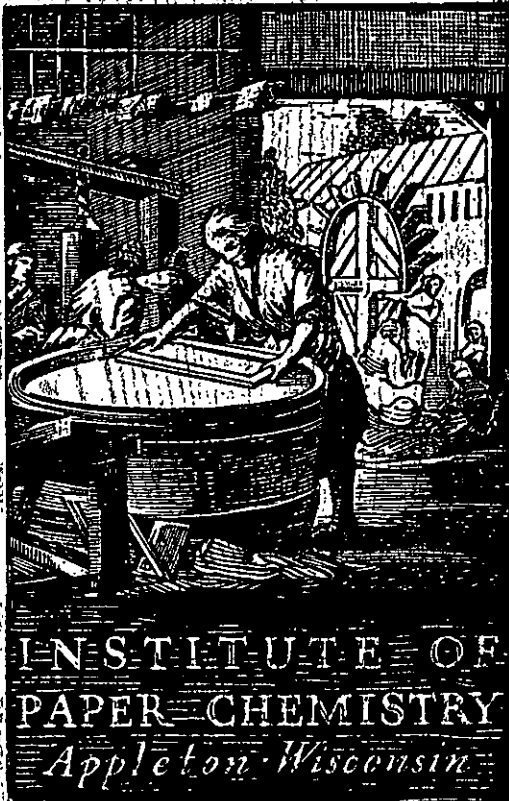


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CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 119

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

June 1, 1957

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

Project 1108-13

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Progress Report 119

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

June 1, 1957

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

In conjunction with the F. K. I. Continuous Baseline Study, The Institute of Paper Chemistry has been directed to identify the participating mills by means of a scrambled system of code letters. Under this system, which was initiated in Progress Report 105, each mill is identified by a code letter different from that used for the previous month.

During the period from May 1 to May 31, one hundred different sample lots of 42-lb. Fourdrinier kraft linerboard were submitted by seventeen different F.K.I. mills to The Institute of Paper Chemistry for testing. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I
DISTRIBUTION OF 42-LB. LINERBOARD SAMPLES

Mill Code ;	Samples Submitted
A	7
B	2
C	1
D	8
E	8
F	10
G	4
H	7
I	7
J	5
K	8
L	4
M	2
N	9
O	0
P	2
Q	10
S	<u>6</u>
Total	100

These sample lots were tested for basis weight, caliper, bursting strength, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 5. In addition to a comparison of the mill averages for the various tests, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The cumulative F.K.I. average is based on the results for the previous twelve months excluding the current period. Hence, in the case of the current report, it covers the period from May 1, 1956, to April 30, 1957. The F.K.I. indexes are obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.0 lb., and the cumulative F.K.I. average basis weight is also 43.0 lb. Hence, the index for basis weight determined in per cent as indicated above is 100.0. This signifies that the current average basis weight is the same as the cumulative average.

A comparison of the results in Table II and Figure 1 shows that the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mills A and N had the highest average basis weight, it being 44.2 lb. or approximately 5.2% higher than the 42-lb. specification. On the other hand, Mill M had the lowest average basis weight, it being 42.0 lb. or the same as the 42-lb. specification.

The amount by which the mills vary from the 42-lb. specification is as follows:

Mill Code	Per Cent
A	+5.2
B	+1.0
C	+1.9
D	+1.4
E	+2.1
F	+2.6
G	+3.3
H	+2.1
I	+4.0
J	+3.3
K	+2.6
L	+0.5
M	0.0
N	+5.2
O	--
P	+2.9
Q	+1.0
S	+1.9

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicated that the basis weight results have remained constant at 43.0 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the mill averages vary from a low of 11.0 points for Mill M to a high of 13.4 points for Mills D and E. The current F.K.I. average is 12.7 points, which is the same as the cumulative F.K.I. average.

The average bursting strength values obtained for each mill are graphically presented in Figure 3. It may be observed in Table II and

Figure 3 that the average bursting strength values for the various mills range from a low of 108 for Mills C, K, and N to a high of 117 for Mills D and I. The current F.K.I. average bursting strength is 112 p.s.i. g., somewhat higher than the cumulative F.K.I. average of 109 p.s.i. g.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figures 4 and 5. The data of Table II show that Mill J has the highest average machine direction tear value of 368 units whereas Mill D has the lowest value of 305 units. Mill J also has the highest cross-machine direction tear value of 413 units; Mill A has the lowest value of 352 units. It may be noted that the current F.K.I. machine direction tear average is slightly lower than the cumulative F.K.I. average whereas the current F.K.I. cross-machine direction tear average is slightly higher than the cumulative F.K.I. average.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. averages for basis weight and caliper are the same as the corresponding cumulative F.K.I. averages, whereas the current F.K.I. averages for bursting strength and cross-machine direction Elmendorf tear are slightly higher than the cumulative average, and the current F.K.I. average for machine direction tear is slightly lower than the cumulative F.K.I. average.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XX for mills A to S, respectively.

The results obtained on the special drum stock are presented in Table XXI.

In addition to the current and cumulative averages, the mill factor and mill index are given for each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular mill for the previous twelve months excluding the current period. The mill factor and the mill index are obtained as follows:

$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor (\%)}$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index (\%)}$$

The mill factor and the mill index are a convenient means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also present a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry. These test data are presented and discussed on subsequent pages of this report.

It may be noted in Tables III through XXI that the test data include information about the sheet finish. The summarized results for the mills which submitted sample lots during the current period are as follows:

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
A	7		
B	2 ^a		
C	1		
D	8		
E	8		
F	10		
G	4		
H	7 ^a		
I	7		
J	5		
K	8		
L	3 ^a	1	
M	2		
N	9		
O	0		
P	2 ^a		
Q	10 ^a		
S	6		
R ^b	0		

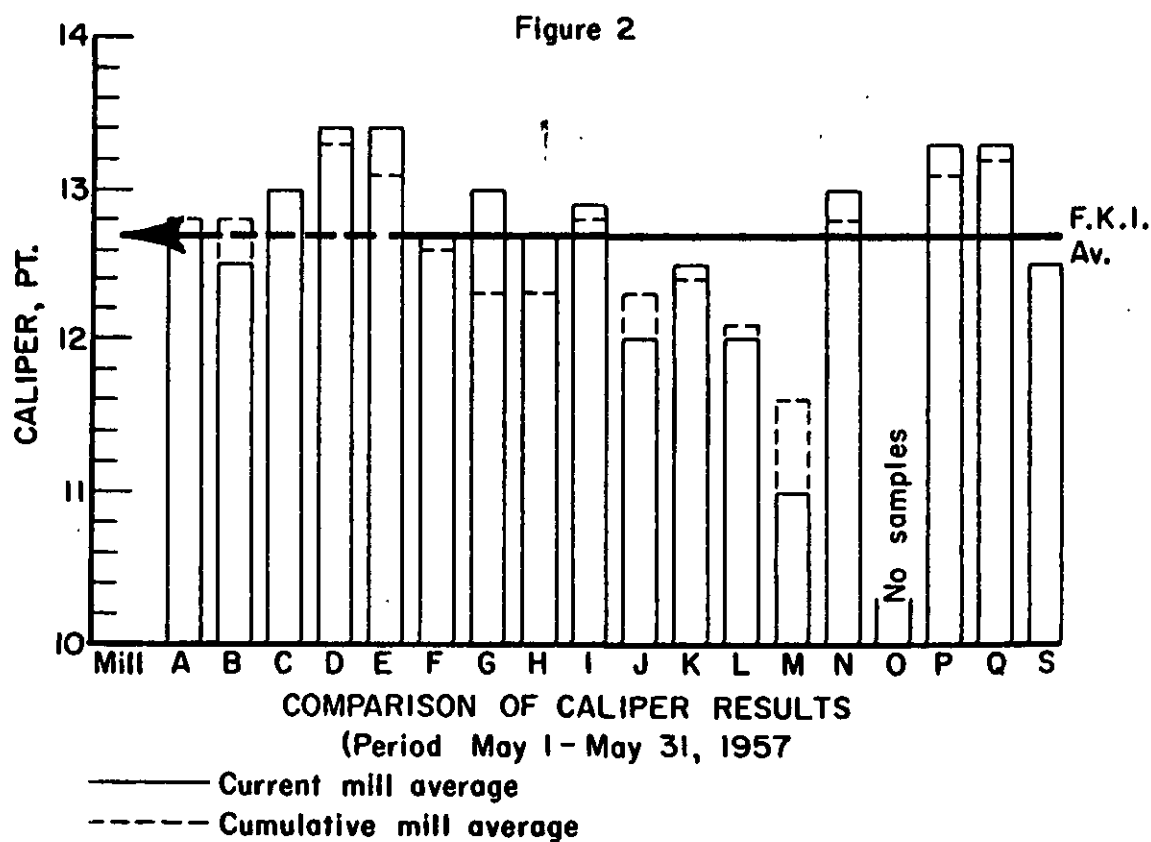
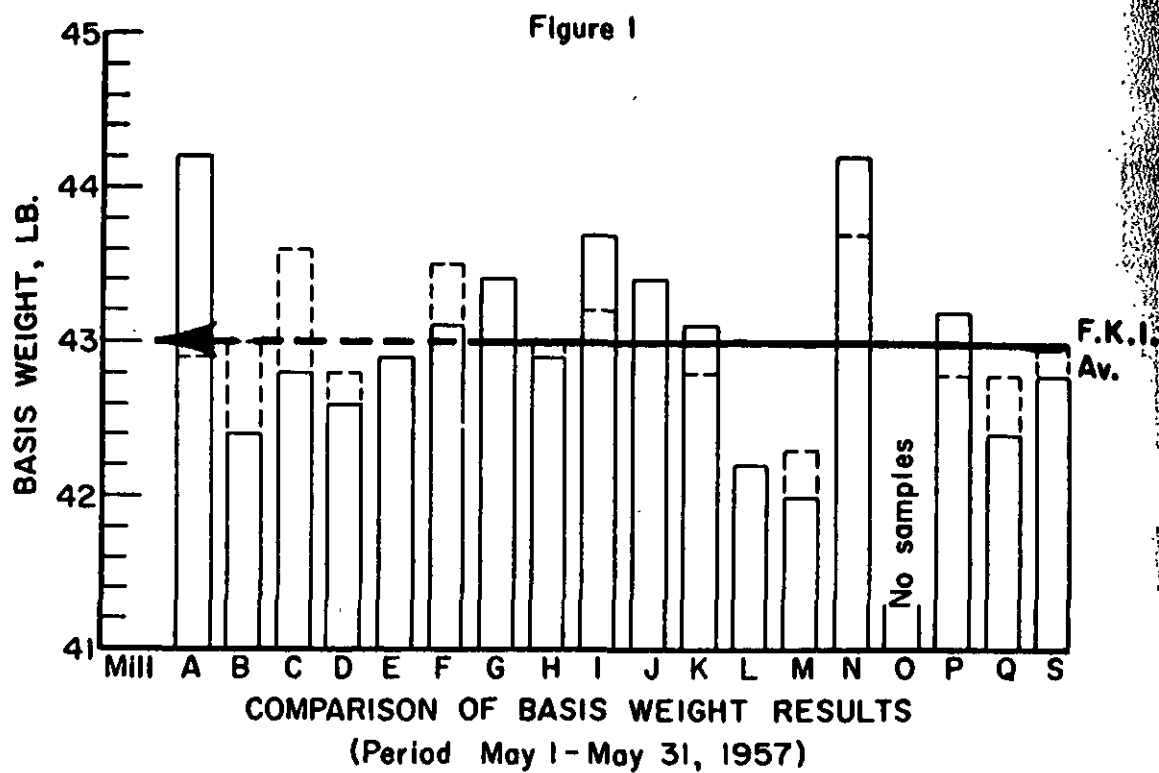
^a One side only
^b Drum linerboard

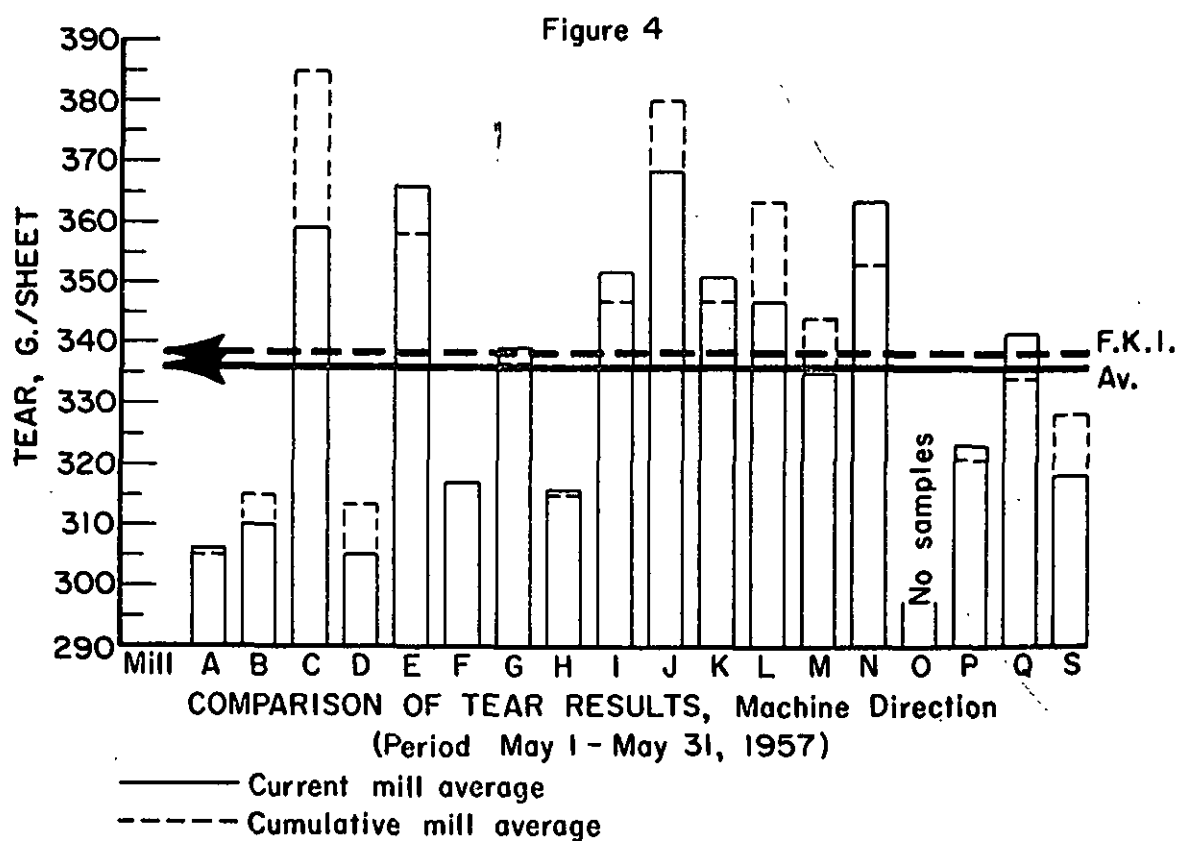
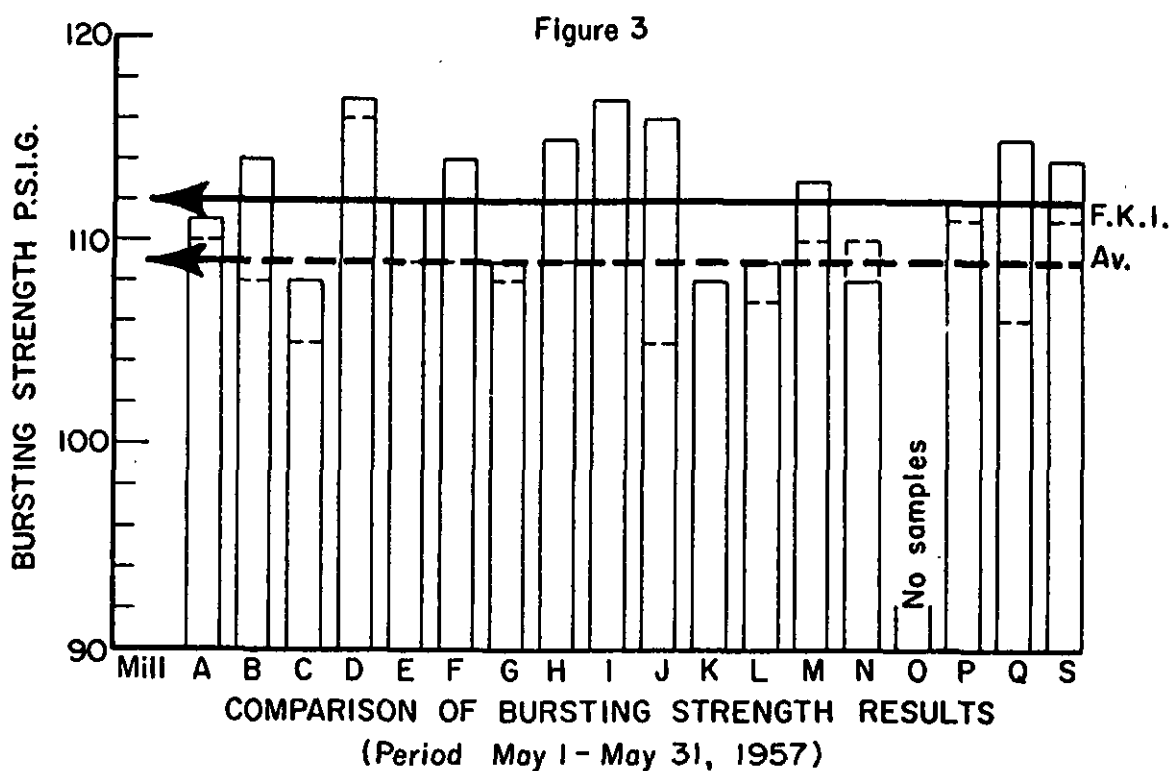
The results indicate that all participating mills are using
a water finish on their 42-lb. linerboard.

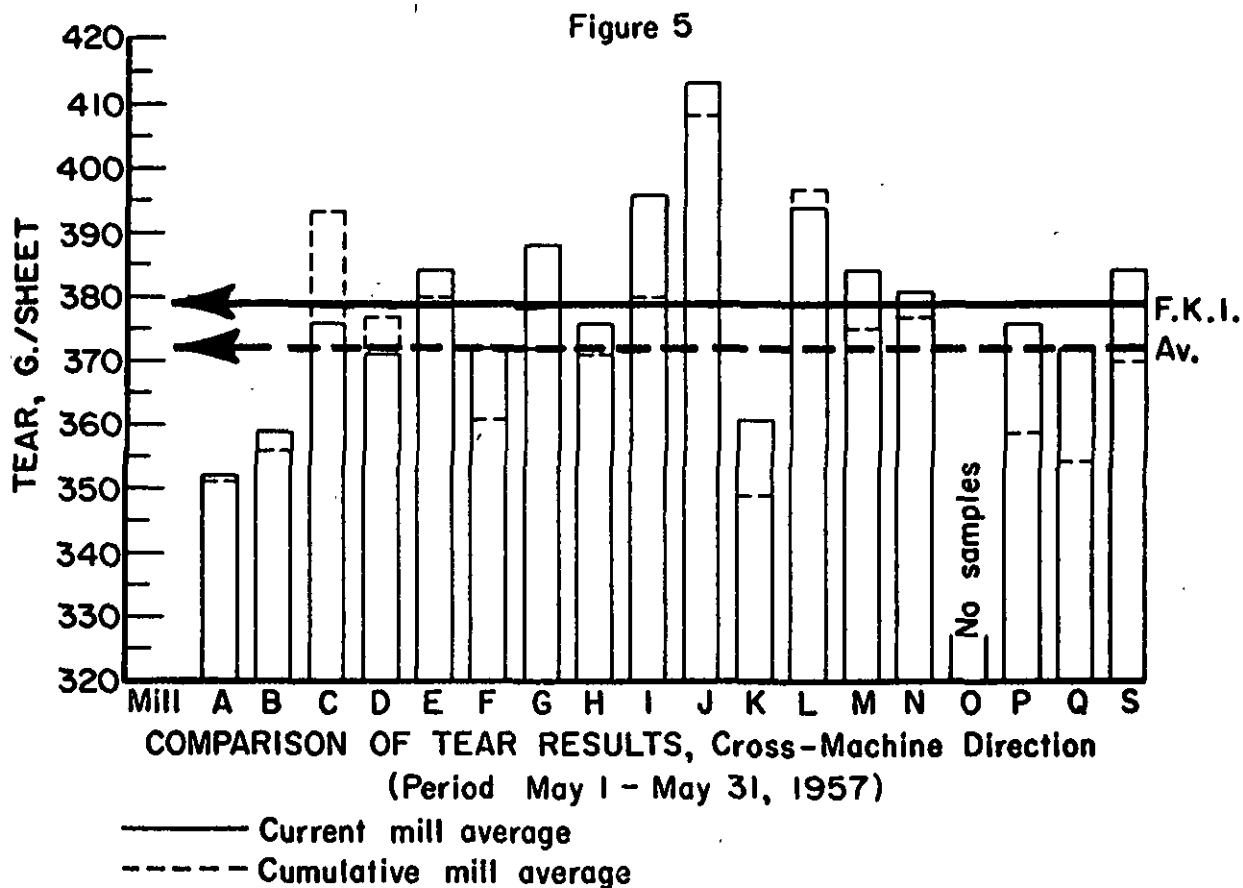
TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--MAY 1 THROUGH MAY 31, 1957

MILL	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	Elmendorf Tear, g./sheet	
				In Machine	Cross Machine
A	44.2	12.7	111	306	352
B	42.4	12.5	114	310	359
C	42.8	13.0	108	359	376
D	42.6	13.4	117	305	371
E	42.9	13.4	112	366	384
F	43.1	12.7	114	317	372
G	43.4	13.0	109	339	388
H	42.9	12.7	115	316	376
I	43.7	12.9	117	352	396
J	43.4	12.0	116	368	413
K	43.1	12.5	108	351	361
L	42.2	12.0	109	347	394
M	42.0	11.0	113	335	384
N	44.2	13.0	108	363	381
O	No samples submitted.				
P	43.2	13.3	112	323	376
Q	42.4	13.3	115	342	372
S	42.8	12.5	114	318	384
Current FK1 Average:	43.0	12.7	112	336	379
Cumulative FK1 Average:	43.0	12.7	109	338	372
FK1 Index, %	100.0	100.0	102.8	99.4	101.9







SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957

TABLE III

MILL A -- 42-1B. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
174329	W.F.	5/ 6/57	4/22/57	1	45.0	43.4	44.2	12.7	12.0	12.3	122	85	108	320	240	269
174330	W.F.	5/ 6/57	4/24/57	1	45.4	43.6	44.4	13.0	11.9	12.4	125	92	108	336	240	296 ^a
174379	W.F.	5/ 9/57	4/27/57	1	45.8	44.0	45.0	13.2	12.0	12.6	131	92	111	352	240	314 ^a
174380	W.F.	5/ 9/57	4/30/57	1	45.8	44.0	44.4	13.0	12.0	12.6	127	90	108	352	248	309
174432	W.F.	5/20/57	5/ 8/57	1	45.0	43.0	44.1	13.3	12.4	13.0	136	86	112	360	280	329 ^a
174528	W.F.	5/28/57	5/19/57	1	44.8	42.6	43.8	14.0	12.3	13.0	134	100	115	368	272	311 ^a
174529	W.F.	5/28/57	5/21/57	1	44.6	42.8	43.9	13.5	12.4	13.0	132	97	113	344	272	313 ^a
Current Mill Average:					44.2			12.7			111			306		
Cumulative Mill Average:					42.9			12.8			110			305		
Mill Factor, %					103.0			99.2			100.9			100.3		
Mill Index, %					102.8			100.0			101.8			90.5		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE IV
MILL B -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I., Range		In		Across						
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
174374	WFLS	5/ 9/57	5/ 2/57	1	43.8	41.8	42.8	13.2	11.8	12.5	138	91	112	368	240	317	408	336	370 ^a
174375	WFLS	5/ 9/57	5/ 3/57	1	42.6	41.2	42.0	13.4	11.8	12.5	131	93	116	352	272	303 ^a	384	320	349 ^a
Current Mill Average:							42.4			12.5			114			310			359
Cumulative Mill Average:							43.0			12.8			108			315			356
Mill Factor, %							98.6	97.7		105.6			98.4			100.8			96.5
Mill Index, %							98.6	98.4		104.6			91.7						

TABLE V

MILL C -- 42-LB. LINERBOARD

174378	S.F.	5/ 9/57	5/ 2/57	7	44.0	41.6	42.8	13.2	12.0	13.0	134	90	108	416	296	359 ^a	400	328	376 ^a
Current Mill Average:					42.8				13.0		108		359		376				
Cumulative Mill Average:					43.6				13.0		105		385		393				
Mill Factor, %					98.2		100.0		102.9		93.2		95.7						
Mill Index, %					99.5		102.4		99.1		106.2		101.1						

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE VI
MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	In	Across
174336	W.F.	5/ 6/57	3/18/57	1	43.2	40.4	12.9	12.0	138	100	368	240
174337	W.F.	5/ 6/57	3/22/57	1	42.8	42.0	14.5	13.5	130	95	384	272
174338	W.F.	5/ 6/57	3/26/57	1	44.0	42.2	14.0	12.0	135	103	352	272
174339	W.F.	5/ 6/57	3/30/57	1	43.2	41.2	13.8	12.4	132	92	368	256
174508	W.F.	5/27/57	4/ 2/57	1	44.0	42.0	14.0	12.9	150	105	400	272
174509	W.F.	5/27/57	4/ 5/57	1	42.4	42.0	13.8	12.2	158	104	344	248
174510	W.F.	5/27/57	4/ 8/57	1	43.8	42.0	14.4	13.3	133	85	368	256
174511	W.F.	5/27/57	4/11/57	1	44.0	42.2	14.2	13.3	134	83	336	264
Current Mill Average:					42.6		13.4		117		305	
Cumulative Mill Average:					42.8		13.3		116		313	
Mill Factor, %					99.5		100.8		100.9		97.4	
Mill Index, %					99.1		105.5		107.3		90.2	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE VII
MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
174266	W.	5/1/57	4/12/57	4	44.2	41.6	42.8	14.3	13.5	14.0	120	90	107	432	352	387 ^a
174267	W.	5/1/57	4/13/57	4	44.0	41.2	42.7	14.0	13.1	13.7	135	100	116	432	336	371 ^a
174333	W.	5/6/57	4/23/57	4	43.4	40.4	42.1	13.4	12.9	13.1	124	87	107	368	320	348 ^a
174334	W.	5/6/57	4/24/57	2	44.2	41.0	42.8	13.8	12.7	13.3	126	85	114	400	296	341 ^a
174436	W.	5/20/57	4/25/57	2	44.2	42.0	43.3 ^a	13.8	13.0	13.3	127	103	115	408	352	377 ^a
174437	W.	5/20/57	5/8/57	4	45.0	43.6	44.1	13.7	13.0	13.2	120	99	111	368	336	351
174514	W.	5/27/57	5/14/57	4	43.8	42.0	42.4	13.9	13.0	13.6	124	98	113	384	304	355 ^a
174515	W.	5/27/57	5/15/57	4	44.2	42.0	43.2	13.9	13.1	13.4	129	98	112	432	368	397 ^a
Current Mill Average:					42.9			13.4			112			366		
Cumulative Mill Average:					42.9			13.1			109			358		
Mill Factor, %					100.0			102.3			102.8			102.2		
Mill Index, %					99.8			105.5			102.8			108.3		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE VIII
MILL F -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			Elmendorf Tear, g./sheet			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
174296	W.F.	5/ 2/57	4/22/57	1	44.4	42.0	43.3	13.2	12.2	12.8	141	97	112	384	272	330 ^a	400	352	379 ^a
174297	W.F.	5/ 2/57	4/22/57	2	44.0	42.4	43.1	13.2	12.2	12.7	145	90	114	368	304	337	416	368	386 ^a
174331	W.F.	5/ 6/57	4/28/57	2	43.8	42.8	43.2	13.3	12.3	12.7	124	84	112	392	280	316 ^a	424	344	369 ^a
174332	W.F.	5/ 6/57	4/28/57	1	44.0	42.8	43.5	12.8	12.0	12.5	127	80	114	360	280	324 ^a	384	336	363 ^a
174385	W.F.	5/13/57	5/ 5/57	2	43.6	42.0	42.6	13.0	12.1	12.5	126	94	112	336	272	301	400	344	367 ^a
174386	W.F.	5/13/57	5/ 5/57	2	42.6	41.8	42.0	13.0	12.2	12.5	131	91	113	352	264	299	400	328	366 ^a
174430	W.F.	5/20/57	5/12/57	2	43.8	42.2	43.0	13.1	12.2	12.8	142	86	110	328	272	309 ^a	400	320	370 ^a
174431	W.F.	5/20/57	5/12/57	2	44.0	42.4	43.4	13.3	12.6	12.9	143	95	113	352	272	303 ^a	384	328	370 ^a
174516	W.F.	5/27/57	5/19/57	2	44.2	42.0	43.5	13.1	12.6	12.9	137	94	115	368	272	312 ^a	448	336	367 ^a
174517	W.F.	5/27/57	5/19/57	1	44.2	42.0	43.7	13.2	12.3	12.9	149	98	121	416	288	339	400	352	380 ^a
Current Mill Average:					43.1			12.7			114			317			372		
Cumulative Mill Average:					43.5			12.6			109			317			361		
Mill Factor, %					99.1			100.8			104.6			100.0			103.0		
Mill Index, %					100.2			100.0			104.6			93.8			100.0		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE IX
MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i., gage			Elmendorf Tear, g./sheet			Across Max. Min. Av.		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
174340	W.F.	5/ 7/57	4/30/57	2	44.0	42.2	43.6	13.7	12.8	13.2	134	86	109	384	280	344	464	336	397 ^a
174341	W.F.	5/ 7/57	5/ 1/57	2	44.0	42.6	43.5	13.2	12.2	12.9	133	74	108	400	296	340	432	368	391 ^a
174393	W.F.	5/13/57	5/ 5/57	2	44.0	42.6	43.8	13.0	12.1	12.8	133	80	109	400	288	349	416	336	379 ^a
174394	W.F.	5/13/57	5/ 6/57	2	43.8	42.0	42.9	13.2	12.8	13.0	132	91	110	376	272	322 ^a	432	336	384 ^a
Current Mill Average:					43.4			13.0			109			339			388		
Cumulative Mill Average:					43.0			12.3			108			337			372		
Mill Factor, %					100.9			105.7			100.9			100.6			104.3		
Mill Index, %					100.9			102.4			100.0			100.3			104.3		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE X

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet								
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Across					
														Max.	Min.	Av.			
1174264	WFLS	5/ 1/57	4/18/57	1	43.8	42.8	43.4	13.1	12.7	12.9	138	96	118	400	288	331	416	360	379 ^a
1174265	WFLS	5/ 1/57	4/22/57	1	44.0	42.6	43.3	13.2	12.3	12.8	145	88	117	384	272	327	400	352	379 ^a
1174274	WFLS	5/ 1/57	4/25/57	1	44.0	42.0	43.3	13.7	12.2	13.1	133	98	117	416	272	324	416	368	388 ^a
1174335	WFLS	5/ 6/57	4/28/57	1	44.0	42.4	43.2	13.3	12.4	13.0	137	93	114	384	288	325	416	352	384 ^a
1174434	WFLS	5/20/57	5/ 7/57	1	42.6	41.4	42.0 ^a	12.7	11.9	12.3	125	83	109	344	264	307	400	312	360 ^a
1174435	WFLS	5/20/57	5/ 9/57	1	43.6	42.0	42.6	12.8	11.6	12.4	127	82	111	336	200	289 ^a	432	296	366 ^a
1174505	WFLS	5/27/57	5/14/57	1	43.2	42.0	42.3	12.9	12.0	12.4	133	97	115	360	272	311	400	336	376 ^a
Current Mill Average:							42.9		12.7		115		316				376		
Cumulative Mill Average:							43.0		12.3		109		315				371		
Mill Factor, %							99.8		103.3		105.5		100.3				101.3		
Mill Index, %							99.8		100.0		105.5		93.5				101.1		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE II

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I., gage		Elmendorf Tear, g./sheet								
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
1174376	W.F.	5/9/57	4/29/57	-	44.0	42.0	42.7	12.9	11.7	12.2	136	92	111	368	272	329 ^a	384	336	356 ^a
1174377	W.F.	5/9/57	4/29/57	-	45.8	42.8	44.1	13.2	12.1	12.8	133	103	118	384	304	346 ^a	448	352	389 ^a
1174425	W.F.	5/20/57	5/13/57	-	44.6	43.2	43.9	13.2	11.9	12.7	132	100	116	416	280	353 ^a	448	360	394 ^a
1174426	W.F.	5/20/57	5/13/57	-	44.2	43.0	43.9	13.8	12.7	13.1	127	90	115	400	320	353 ^a	432	368	399 ^a
1174489	W.F.	5/24/57	5/14/57	-	44.2	42.0	43.0	13.6	12.0	12.9	150	91	125	440	328	371 ^a	432	376	405 ^a
1174490	W.F.	5/24/57	5/22/57	-	45.8	42.6	44.0	13.5	11.7	12.9	135	104	118	416	304	367	464	384	411 ^a
1174491	W.F.	5/24/57	5/22/57	-	46.0	43.0	44.3	13.9	12.9	13.3	142	96	116	368	320	347 ^a	464	384	419 ^a
Current Mill Average:							43.7			12.9			117			352			396
Cumulative Mill Average:							43.2			12.8			109			347			380
Mill Factor, %							101.2			100.8			107.3			101.4			104.2
Mill Index, %							101.6			101.6			107.3			104.1			106.5

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XII

MILL J -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basic Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
174275	W.B.	5/ 1/57	4/11/57	-	44.6	40.0	12.2	11.6	136	97	392	288
174388	W.B.	5/13/57	5/ 2/57	-	44.2	42.4	12.8	11.7	137	93	472	352
174389	W.B.	5/13/57	5/ 4/57	-	44.2	42.0	12.6	11.8	132	87	432	344
174469	W.B.	5/22/57	5/ 8/57	-	44.0	42.0	12.6	11.8	138	97	400	320
174470	W.B.	5/22/57	5/10/57	-	44.4	42.2	12.0	11.2	136	99	416	336
Current Mill Average:					43.4		12.0		116		368	
Cumulative Mill Average:					43.4		12.3		105		380	
Mill Factor, %					100.0		97.6		110.5		96.8	
Mill Index, %					100.9		94.5		106.4		108.9	
											101.2	
											111.0	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XIII

MILL K -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
174268	W.F.	5/1/57	4/17/57	-	43.8	42.0	43.0	12.0	12.5	73	104	384
174269	W.F.	5/1/57	4/17/57	-	43.8	41.8	42.9	12.6	11.7	122	82	368
174417	W.F.	5/16/57	5/6/57	-	44.2	42.2	43.7	13.3	12.0	129	85	400
174418	W.F.	5/16/57	5/6/57	-	44.0	42.2	43.7	13.3	12.0	122	92	416
174438	W.F.	5/20/57	5/15/57	-	44.0	42.0	43.1	13.4	12.9	124	84	384
174439	W.F.	5/20/57	5/15/57	-	44.2	42.0	43.2	13.8	12.3	117	74	400
174506	W.F.	5/27/57	5/21/57	-	44.0	42.0	43.0	12.7	11.3	152	93	448
174507	W.F.	5/27/57	5/21/57	-	44.0	41.4	42.6	12.6	11.2	132	96	408
Current Mill Average:					43.1		12.5		108		351	
Cumulative Mill Average:					42.8		12.4		108		347	
Mill Factor, %					100.7		100.8		100.0		101.2	
Mill Index, %					100.2		98.4		99.1		103.8	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XIV

MILL L -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I.		In		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
174381	WFLS	5/9/57	5/2/57	1	43.0	41.6	12.8	11.2	143	96	392	288	343	432
174392	D.F.	5/13/57	5/3/57	1	43.8	42.2	12.7	11.5	127	80	432	304	355 ^a	432
174410	WFLS	5/14/57	5/8/57	1	42.4	41.8	12.4	11.3	125	90	352	320	336	408
174488	WFLS	5/24/57	5/15/57	1	42.2	41.4	12.8	11.8	132	92	400	320	355 ^a	416
Current Mill Average:					42.2		12.0		109		347		394	
Cumulative Mill Average:					42.2		12.1		107		363		397	
Mill Factor, %					100.0		99.2		101.9		95.6		99.2	
Mill Index, %					98.1		94.5		100.0		102.7		105.9	

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XV

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i., gage			Elmendorf Tear, g./sheet					
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
174298	W.F.	5/ 2/57	4/17/57	4	42.2	41.8	42.0	11.2	10.8	11.0	128	92	111	392	288	333	456	336	391 ⁴
174299	W.F.	5/ 2/57	4/17/57	4	42.2	41.6	42.0	11.2	10.8	11.0	132	97	114	384	288	337 ^a	400	344	377 ^a
Current Mill Average:					42.0			11.0			113			335			384		
Cumulative Mill Average:					42.3			11.6			110			344			375		
Mill Factor, %					99.3			94.8			102.7			97.4			102.4		
Mill Index, %					97.7			86.6			103.7			99.1			103.2		

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XVI

MILL B -- 42-LB. LINERBOARD

File	No.	Finish	Date	Recd.	Mch.	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i., edge	Elmendorf Tear, in.	Across
						Max. Min. Av.	Max. Min. Av.	Max. Min. Av.	Max. Min. Av.	Max. Min. Av.
174326	W.F.	5/ 6/57	5/ 1/57	-	-	46.0 44.0 44.6	13.0 12.1 12.5	119 97 110	384 336 364	400 352 380
174327	W.F.	5/ 6/57	5/ 2/57	-	-	46.8 44.2 45.7	14.0 13.0 13.4	128 91 111	392 352 369	432 368 406
174328	W.F.	5/ 6/57	5/ 3/57	-	-	45.6 44.0 44.8	13.7 13.0 13.2	124 98 112	384 320 351	416 368 395
174413	W.F.	5/ 8/57	5/ 8/57	-	-	43.2 41.6 42.2	13.2 12.2 12.7	116 82 101	400 272 348	400 320 369
174414	W.F.	5/ 15/57	5/ 9/57	-	-	44.2 42.0 43.1	13.3 12.0 12.8	131 92 114	408 312 357	408 320 368
174415	W.F.	5/ 15/57	5/ 10/57	-	-	45.2 43.6 44.4	13.4 12.8 13.0	138 96 114	432 336 378	424 344 381
174427	W.F.	5/ 20/57	5/ 15/57	-	-	46.4 44.6 45.6	14.2 12.8 13.5	128 81 110	384 328 355	416 360 391
174428	W.F.	5/ 20/57	5/ 16/57	-	-	44.8 43.4 43.9	13.8 12.9 13.3	111 68 92	456 328 403	416 320 367
174429	W.F.	5/ 20/57	5/ 17/57	-	-	44.4 43.0 43.6	13.2 12.4 12.9	124 94 108	376 312 342	400 344 372
Current Mill Average:						44.2	13.0	108	363	381
Cumulative Mill Average:						43.7	12.8	110	353	377
Mill Factor, %										
101.1										
102.8										
Mill Index, %										
101.1										
102.4										

*This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XVII

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Av.	Max.	Min.	Av.	In	Across

No samples submitted.

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

174382	WF1S	5/ 9/57	4/24/57	1	44.0	41.8	43.4	14.0	12.9	13.3	138	90	112	368	296	323	408	312	366 ^a
174383	WF1S	5/ 9/57	4/24/57	1	44.2	42.2	43.1	13.8	13.0	13.4	130	84	111	384	288	323	416	368	385 ^a
Current Mill Average:					43.2			13.3			112			323			376		
Cumulative Mill Average:					42.8			13.1			111			321			359		
Mill Factor, %					100.9			101.5			100.9			100.6			104.7		
Mill Index, %					100.5			104.7			102.8			95.6			101.1		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I., gage			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
174272	WFLS	5/1/57	4/23/57	2	43.2	41.8	42.1	13.8	13.0	13.3	127	97	112	408	328	360
174273	WFLS	5/1/57	4/24/57	2	44.0	42.0	42.7	13.9	12.9	13.3	133	101	119	416	304	343 ^a
174300	WFLS	5/3/57	4/25/57	2	43.0	42.0	42.5	13.7	12.7	13.3	130	105	118	432	320	355 ^a
174342	WFLS	5/8/57	5/1/57	2	43.6	42.0	42.3	14.8	13.0	13.9	130	105	115	432	280	345 ^a
174343	WFLS	5/8/57	5/2/57	2	42.2	40.0	41.6	14.0	13.0	13.4	127	91	110	368	256	309 ^a
174387	WFLS	5/13/57	5/7/57	2	45.4	43.8	44.2	14.2	13.0	13.7	126	95	112	464	320	376 ^a
174416	WFLS	5/15/57	5/10/57	2	44.4	42.4	43.1	14.0	12.9	13.4	138	106	122	360	304	336 ^a
174433	WFLS	5/20/57	5/15/57	2	43.4	42.0	42.5	14.0	12.6	13.3	122	92	107	352	304	333 ^a
174512	WFLS	5/27/57	5/16/57	2	42.6	41.6	42.0	14.0	12.6	13.1	133	93	116	360	280	327 ^a
174513	WFLS	5/27/57	5/20/57	2	42.2	41.0	41.4	13.3	12.4	12.8	137	98	116	376	296	335 ^a
Current Mill Average:					42.4			13.3			115			342		
Cumulative Mill Average:					42.8			13.2			106			334		
Mill Factor, %					99.1			100.8			108.5			102.4		
Mill Index, %					98.6			104.7			105.5			101.2		

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

SUMMARY OF INSTITUTE DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XX

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I., gage			Elmendorf Tear, g./sheet		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
174270	W.F.	5/ 1/57	4/21/57	2	42.2	40.2	41.7	13.5	12.1	12.7	131	73	109	336	264	299 ^a
174271	W.F.	5/ 1/57	4/21/57	2	43.4	41.6	42.1	13.0	12.0	12.5	137	83	114	368	248	309 ^a
174390	W.F.	5/13/57	4/21/57	2	44.0	42.0	43.1	13.1	11.7	12.5	144	92	116	400	288	334
174301	W.F.	5/ 3/57	4/26/57	2	44.0	42.4	43.8	13.5	12.0	12.5	150	100	123	368	280	325
174302	W.F.	5/ 3/57	4/26/57	2	44.2	42.4	43.6	13.1	11.9	12.6	151	81	118	368	304	335
174391	W.F.	5/13/57	4/28/57	2	43.8	41.8	42.6	13.0	12.0	12.4	132	67	102	336	240	303 ^a
Current Mill Average:					42.8 ^a			12.5			114			318		
Cumulative Mill Average:					43.0			12.5			111			328		
Mill Factor, %					99.5			100.0			102.7			97.0		
Mill Index, %					99.5			98.4			104.6			94.1		

TABLE XXI

MILL R -- 47-LB. DRUM LINERBOARD

No samples submitted.

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XXII, the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the conditioning periods varied considerably.

TABLE XXII

Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H., %	Temp., °F.	Time, hr.
A	48-64	66-86	0.5	50	70	24-48
B	51-52	76	24-48	48-51	75-78	2
C	50	73	24		None	
D		None		40-64	76-84	--
E		None		48-52	71-72	--
F		None		50	73	24
G		None		50	73	24
H		None		50-52	72-76	--
I		None		50	72	24-192
J		None		50-53	72-73	48
K		None		47-50	73-74	0.5
L	50	72-73	24	50	73	24
M		None		50	73	24
N	36-37	78	8	49-53	72-74	16
O		No samples submitted.				
P		None		55	89-92	--
Q	50	72	24		None	
S	50	73	24	50	73	24

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of differences between Institute and mill test results is given in Table XXIV for the current period and the two previous periods. The comparisons are given in Tables XXV to

to XLII, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XLIII. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. Table XXIII shows the average difference between Institute and mill test results for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the average differences shown for each test in Table XXIII have been calculated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

It may be noted in Table XXIV that the maximum variation between the average basis weight results of the Institute and those of a given mill on corresponding samples is three per cent for the current period. By comparison, the maximum percentage variation noted for the previous two periods was also three per cent. Further, it may be noted that the average basis weight results for Mills B, I, M, N, Q, and S are higher than those for the Institute, the average results for Mills J and L are the same, and the average results for the other mills are lower. None of the variations for the current period appear to be excessive.

The maximum variation in caliper for the current period is seven per cent. This variation is slightly greater than the maximum variation of six per cent for the previous two periods. Compared with the Institute's test results, the test results for all mills are lower. Only the variation for Mill B appears to be excessive.

It may be noted in Table XXIV that the bursting strength results exhibited a maximum variation of seven per cent for the current period. The average results for Mills B, E, F, and K are higher than those for the Institute, the average result for Mill N is the same, and the results for the other mills are lower. Only the variations associated with the results for Mills E, I, M, and Q appear to be excessive.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills A, C, F, G, H, L, P, Q, and S are higher than those for the Institute, and the results for the other mills are lower. The maximum variation for the current period is twenty-one per cent. The variations which exceed a magnitude of ten per cent may be excessive. Mills in this category include B, D, H, J, and M.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills A, C, F, G, H, K, L, N, P, and Q are higher than those for the Institute, and the average results for the other mills are lower. The maximum variation for the current period is eighteen per cent. The variation noted for Mill L exceeds ten per cent and appears to be excessive.

TABLE XXIII
SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS)

Mills*	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S
No. Samples Compared	7	2	1	8	8	10	4	7	7	5	8	4	2	9	0	2	10	6
Institute	44.2	42.4	42.8	42.6	42.9	43.1	43.4	42.9	43.7	43.4	43.1	42.2	42.0	44.2	--	43.2	42.4	42.8
Mill	43.8	42.7	42.3	42.2	42.5	42.7	43.0	42.6	43.9	43.4	42.6	42.2	42.2	44.4	--	42.5	43.6	43.4
Av. Diff.**	-0.4	+0.3	-0.5	-0.4	-0.4	-0.4	-0.6	-0.3	+0.2	0.0	-0.5	0.0	+0.2	+0.2	--	-0.7	+1.2	+0.6
Max. Diff.***	-1.1	+0.4	-0.5	-1.0	-1.5	-1.0	-0.6	-0.8	+1.0	+0.5	-0.8	+0.5	+0.2	+1.5	--	-0.8	+2.0	+0.9
Basis Weight																		
Institute	12.7	12.5	13.0	13.4	13.4	12.7	13.0	12.7	12.9	12.0	12.5	12.0	11.0	13.0	--	13.3	13.3	12.5
Mill	12.4	11.6	12.6	13.1	12.7	12.3	12.5	12.3	12.5	11.5	12.2	11.8	10.8	12.6	--	12.6	13.2	12.2
Av. Diff.**	-0.3	-0.9	-0.4	-0.3	-0.7	-0.4	-0.5	-0.4	-0.4	-0.5	-0.3	-0.2	-0.2	-0.4	--	-0.7	-0.1	-0.3
Max. Diff.***	-0.5	-1.0	-0.4	-0.6	-1.4	-0.7	-0.6	-0.9	-0.5	-0.6	-0.6	-0.6	-0.3	-0.7	--	-1.1	-0.8	-0.4
Caliber																		
Institute	111	114	108	117	112	114	109	115	117	116	108	109	113	108	--	112	115	114
Mill	110	115	104	112	120	115	108	112	110	112	110	108	106	108	--	107	107	112
Av. Diff.**	-1	+1	-4	-5	+8	+1	-1	-3	-7	-4	+2	-1	-7	0	--	-5	-8	-2
Max. Diff.***	-5	+3	-4	-12	+17	-7	-2	-7	-12	-8	+7	-6	-7	-10	--	-5	-13	+10
Bursting Strength																		
Institute	306	310	359	305	366	317	339	316	352	368	351	347	335	363	--	323	342	318
Mill	316	245	360	269	343	332	345	351	333	321	330	373	297	359	--	350	357	324
Av. Diff.**	+10	-65	+1	-36	-23	+15	+6	+35	-19	-47	-21	+26	-38	-4	--	+27	+15	+6
Max. Diff.***	+56	-76	+1	-51	-42	+35	+47	+68	-33	-75	-30	+59	-41	+29	--	+30	+35	+39
Tearing Strength, In																		
Institute	352	359	376	371	384	372	388	376	396	413	361	394	384	381	--	376	372	384
Mill	364	333	402	360	357	387	423	412	384	382	362	466	359	395	--	413	408	378
Av. Diff.**	+12	-26	+26	-11	-27	+15	+35	+36	-12	-31	+1	+72	-25	+14	--	+37	+36	-6
Max. Diff.***	+29	-39	+26	-44	-41	+30	+58	+72	-39	-52	-21	+91	-28	+37	--	+47	+64	-10
Tearing Strength, Across																		

* Comparison based on averages involved only those samples on which mill test data were submitted.
** Average difference is the difference between the Institute mill average and the mill average based on mill test data.
*** Average difference encountered in comparing the Institute average and the mill average for any sample submitted by that particular mill.

TABLE XXIV

COMPARISON OF INSTITUTE-MILL DIFFERENCES BY PERIODS

Mill	Period	Average Differences, per cent				
		Basis Weight	Caliper	Bursting Strength	Tearing Strength, In	Across
A	Current	-0.9	-2	-0.9	+3	+3
	118th	+1	-0.8	-0.9	+2	+5
	117th	+2	-0.8	-2	+2	+4
B	Current	+0.7	-7	+0.9	-21	-7
	118th	-1	-5	-0.9	-16	-8
	117th	-1	-5	+4	-26	-5
C	Current	-1	-3	-4	+0.3	+7
	118th	-0.7	-3	+5	-4	+4
	117th	-0.7	-5	+6	-11	0
D	Current	-0.9	-2	-4	-12	-3
	118th	-2	-2	-4	-15	-6
	117th	-1	-3	-3	-13	-4
E	Current	-0.9	-5	+7	-6	-7
	118th	-0.2	-4	+11	-2	-3
	117th	0	-3	+5	+0.3	-5
F	Current	-0.9	-3	+0.9	+5	+4
	118th	-2	-3	+4	+3	+5
	117th	-1	-3	+2	+5	+3
G	Current	-0.9	-4	-0.9	+2	+5
	118th	+0.5	-3	+0.9	+5	+12
	117th	+0.2	-4	+0.9	0	+9
H	Current	-0.7	-3	-3	+11	+10
	118th	-2	-3	-4	-2	+3
	117th	+0.5	-2	+0.9	+5	+5
I	Current	+0.5	-3	-6	-5	-3
	118th	+0.2	-4	-3	-3	-3
	117th	0	-4	-7	-8	-4
J	Current	0	-4	-3	-13	-8
	118th	-1	-2	0	-10	-6
	117th	-0.7	-3	-3	-9	-5
K	Current	-1	-2	+2	-6	+0.3
	118th	-0.9	-3	+0.9	-10	-4
	117th	-0.7	-3	+0.9	-0.6	+9
L	Current	0	-2	-0.9	+7	+18
	118th	-0.5	-3	-2	+11	+23
	117th	+1	-3	-0.9	+9	+22
M	Current	+0.5	-2	-6	-11	-7
	118th	--	--	--	--	--
	117th	--	--	--	--	--
N	Current	+0.5	-3	0	-1	+4
	118th	-2	-2	-2	-3	+2
	117th	+0.7	-3	-0.9	-6	-3
O	Current	--	--	--	--	--
	118th	--	--	--	--	--
	117th	--	--	--	--	--
P	Current	-2	-5	-4	+8	+10
	118th	-1	-6	-3	-7	-4
	117th	-0.9	-4	+0.9	0	-4
Q	Current	+3	-0.8	-7	+4	+10
	118th	+2	-4	-3	+10	+16
	117th	+3	-4	-6	+7	+9
S	Current	+1	-2	-2	+2	-2
	118th	+0.2	-2	0	+1	-0.1
	117th	-0.2	-3	-2	-2	-1

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957

TABLE XXV

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		Elmendorf Tear, g./sheet	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across
174329	W.F.	4/22/57	1	44.2	43.6 -0.6	12.3	12.1 -0.2	108	107 -1	269	325
174330	W.F.	4/24/57	1	44.4	43.3 -1.1	12.4	12.1 -0.3	108	108 0	296 ^a	330
174379	W.F.	4/27/57	1	45.0	44.1 -0.9	12.6	12.1 -0.5	111	107 -4	314 ^a	314
174380	W.F.	4/30/57	1	44.4	43.9 -0.5	12.6	12.2 -0.4	108	110 +2	309	322
174432	W.F.	5/ 8/57	1	44.1	44.2 +0.1	13.0	12.7 -0.3	112	113 +1	329 ^a	301
174528	W.F.	5/19/57	1	43.8	43.7 -0.1	13.0	12.8 -0.2	115	110 -5	311 ^a	310
174529	W.F.	5/21/57	1	43.9	43.9 0.0	13.0	12.8 -0.2	113	111 -2	313 ^a	306
Current Mill Average:				44.2	43.8 -0.4	12.7	12.4 -0.3	111	110 -1	306	316
										+10	+12

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

174374	W.F.S	5/ 2/57	1	42.8	42.9 +0.1	12.5	11.5 -1.0	112	115 +3	317	241
174375	W.F.S	5/ 3/57	1	42.0	42.4 +0.4	12.5	11.7 -0.8	116	115 -1	303 ^a	248
Current Mill Average:				42.4	42.7 +0.3	12.5	11.6 -0.9	114	115 +1	310	245
										-65	-26

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet			
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In		Across	
										IPC	Mill Diff.	IPC	Mill Diff.
174378	S.F.	5/ 2/57	7	42.8	42.3 -0.5	13.0	12.6 -0.4	108	104 - 4	359 ^a	360 + 1	376 ^a	402 +26
Current Mill Average:				42.8	42.3 -0.5	13.0	12.6 -0.4	108	104 - 4	359	360 + 1	376	402 +26

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

174336	W.F.	3/18/57	1	42.0	41.7 -0.3	12.5	12.1 -0.4	120	112 - 8	297	253	368 ^a	348 -20
174337	W.F.	3/22/57	1	42.2	42.2 0.0	14.0	13.7 -0.3	115	112 - 3	320	285	382 ^a	365 -17
174338	W.F.	3/26/57	1	43.7	42.7 -1.0	13.0	13.0 0.0	119	114 - 5	313 ^a	262	395 ^a	351 -44
174339	W.F.	3/30/57	1	42.2	42.1 -0.1	13.1	12.9 -0.2	108	110 + 2	310 ^a	270	367 ^a	360 - 7
174508	W.F.	4/ 2/57	1	43.2	42.7 -0.5	13.5	12.9 -0.6	124	112 -12	314	268	379 ^a	375 - 4
174509	W.F.	4/ 5/57	1	42.1	41.8 -0.3	13.1	13.0 -0.1	123	112 -11	291	268	357 ^a	359 + 2
174510	W.F.	4/ 8/57	1	42.3	42.2 -0.1	14.1	13.6 -0.5	113	113 0	306	277	355 ^a	366 +11
174511	W.F.	4/11/57	1	43.0	42.4 -0.6	13.8	13.5 -0.3	114	109 - 5	291 ^a	271	368 ^a	360 - 8
Current Mill Average:				42.6	42.2 -0.4	13.4	13.1 -0.3	117	112 - 5	305	269	371	360 -11

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet		Across	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Diff.	IPC	Mill Diff.
174266	W.	4/12/57	4	42.8	-0.5	14.0	12.6	-1.4	107	124	+17	387 ^a	345
174267	W.	4/13/57	4	42.7	-0.2	13.7	13.0	-0.7	116	115	-1	371 ^a	347
174333	W.	4/23/57	4	42.1	-0.5	13.1	12.7	-0.4	107	116	+9	348 ^a	331
174334	W.	4/24/57	2	42.8	-0.4	13.3	12.8	-0.5	114	125	+11	341 ^a	319
174436	W.	4/25/57	2	43.3	-0.3	13.3	12.4	-0.9	115	118	+3	377 ^a	344
174437	W.	5/8/57	4	44.1	-1.5	13.2	12.6	-0.6	111	120	+9	351	351
174514	W.	5/14/57	4	42.4	+0.2	13.6	12.8	-0.8	113	118	+5	355 ^a	339
174515	W.	5/15/57	4	43.2	-0.4	13.4	12.6	-0.8	112	122	+10	397 ^a	363
Current Mill Average:				42.9	-0.4	13.4	12.7	-0.7	112	120	+8	366	343
												384	-23
												357	-27

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXX

MILL F -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight,		Caliper		Bursting Strength,		Elmendorf Tear,	
				IPC	Diff.	IPC	Diff.	IPC	Diff.	In	Across
				lb.		points		p.s.i.		g./sheet	
				IPC	Diff.	IPC	Diff.	IPC	Diff.	IPC	Diff.
174296	W.F.	4/22/57	1	43.3	-0.5	12.8	-0.7	112	+3	330 ^a	+28
174297	W.F.	4/22/57	2	43.1	-0.7	12.7	-0.7	114	0	337 ^a	-23
174331	W.F.	4/28/57	2	43.2	-0.6	12.7	-0.4	112	+1	316 ^a	-5
174332	W.F.	4/28/57	1	43.5	-0.6	12.5	-0.1	114	-1	324 ^a	+1
174385	W.F.	5/5/57	2	42.6	-0.1	12.5	-0.4	112	+5	301	+35
174386	W.F.	5/5/57	2	42.0	+0.2	12.5	-0.5	113	+3	299	+31
174430	W.F.	5/12/57	2	43.0	0.0	12.8	-0.2	110	+6	309 ^a	+33
174431	W.F.	5/12/57	2	43.4	-0.3	12.9	-0.5	113	+4	303 ^a	+32
174516	W.F.	5/19/57	2	43.5	-1.0	12.9	-0.3	115	-3	312 ^a	+22
174517	W.F.	5/19/57	1	43.7	-0.5	12.9	-0.3	121	-7	339	0
Current Mill Average:				43.1	-0.4	12.7	-0.4	114	+1	317	+15
										372	+15
										387	+15

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXXI

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight,		Caliper,		Bursting Strength,		Elmendorf Tear.								
				lb.	Diff.	points	Diff.	p.s.i. gage		g./sheet		Across						
								IPC	Mill	IPC	Mill	In	Diff.	IPC	Mill	Diff.		
174340	W.F.	4/30/57	2	43.6	43.0	-0.6	13.2	12.6	-0.6	109	108	- 1	344	337	- 7	397 ^a	412	+15
174341	W.F.	5/ 1/57	2	43.5	42.9	-0.6	12.9	12.6	-0.3	108	108	0	340	328	-12	391 ^a	409	+18
174393	W.F.	5/ 5/57	2	43.8	43.4	-0.4	12.8	12.3	-0.5	109	109	0	349	347	- 2	379 ^a	437	+58
174394	W.F.	5/ 6/57	2	42.9	42.6	-0.3	13.0	12.5	-0.5	110	108	- 2	322 ^a	369	+47	384 ^a	434	+50
Current Mill Average:				43.4	43.0	-0.4	13.0	12.5	-0.5	109	108	- 1	339	345	+ 6	388	423	+35

TABLE XXXII

MILL H -- 42-LB. LINERBOARD

174264	WFLS	4/18/57	1	43.4	42.8	-0.6	12.9	12.0	-0.9	118	111	- 7	331	368	+37	379 ^a	419	+40
174265	WFLS	4/22/57	1	43.3	42.5	-0.8	12.8	12.4	-0.4	117	117	0	327	341	+14	379 ^a	405	+26
174274	WFLS	4/25/57	1	43.3	42.8	-0.5	13.1	12.9	-0.2	117	115	- 2	324	341	+17	388 ^a	402	+14
174335	WFLS	4/28/57	1	43.2	42.7	-0.5	13.0	12.8	-0.2	114	110	- 4	325	345	+20	384 ^a	419	+35
174434	WFLS	5/ 7/57	1	42.0	42.3	+0.3	12.3	12.0	-0.3	109	108	- 1	307	361	+54	360 ^a	432	+72
174435	WFLS	5/ 9/57	1	42.6	42.4	-0.2	12.4	12.1	-0.3	111	110	- 1	289 ^a	357	+68	366 ^a	414	+48
174505	WFLS	5/14/57	1	42.3	42.4	+0.1	12.4	12.2	-0.2	115	112	- 3	311	341	+30	376 ^a	397	+21
Current Mill Average:				42.9	42.6	-0.3	12.7	12.3	-0.4	115	112	- 3	316	351	+35	376	412	+36

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXXIII

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.			Elmendorf Tear, g./sheet					
				IPC		Diff.	IPC		Diff.	IPC		Diff.	IPC		Diff.			
				Mill	Diff.		Mill	Diff.		Mill	Diff.		Mill	Diff.				
174376	W.F.	4/29/57	-	42.7	43.1	+0.4	12.2	11.7	-0.5	111	109	-2	329 ^a	316	-13	356 ^a	351	-5
174377	W.F.	4/29/57	-	44.1	44.1	0.0	12.8	12.3	-0.5	118	113	-5	346 ^a	327	-19	389 ^a	384	-5
174425	W.F.	5/13/57	-	43.9	44.4	+0.5	12.7	12.3	-0.4	116	109	-7	353 ^a	331	-22	394 ^a	383	-11
174426	W.F.	5/13/57	-	43.9	44.1	+0.2	13.1	12.6	-0.5	115	111	-4	353 ^a	320	-33	399 ^a	360	-39
174489	W.F.	5/14/57	-	43.0	44.0	+1.0	12.9	12.7	-0.2	125	113	-12	371 ^a	347	-24	405 ^a	416	+11
174490	W.F.	5/22/57	-	44.0	43.5	-0.5	12.9	12.8	-0.1	118	109	-9	367	345	-22	411 ^a	404	-7
174491	W.F.	5/22/57	-	44.3	44.3	0.0	13.3	13.0	-0.3	116	109	-7	347 ^a	344	-3	419 ^a	391	-28
Current Mill Average:				43.7	43.9	+0.2	12.9	12.5	-0.4	117	110	-7	352	333	-19	396	384	-12

Current Mill Average:

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

174275	W.B.	4/11/57	-	42.9	43.4	+0.5	11.9	11.6	-0.3	115	112	-3	327	303	-24	373	363	-10
174388	W.B.	5/2/57	-	43.6	43.5	-0.1	12.1	11.5	-0.6	113	110	-3	389 ^a	328	-61	439 ^a	397	-42
174389	W.B.	5/4/57	-	43.5	43.4	-0.1	12.1	11.5	-0.6	116	113	-3	387 ^a	312	-75	404 ^a	379	-25
174469	W.B.	5/8/57	-	43.3	43.4	+0.1	12.1	11.7	-0.4	120	112	-8	364 ^a	347	-17	429 ^a	404	-25
174470	W.B.	5/10/57	-	43.7	43.4	-0.3	11.7	11.4	-0.3	116	112	-4	375 ^a	316	-59	421 ^a	369	-52
Current Mill Average:				43.4	43.4	0.0	12.0	11.5	-0.5	116	112	-4	368	321	-47	413	382	-31

Current Mill Average:

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXV

MILL K -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I., gage		In		Elmendorf Tear, g./sheet		Across	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Diff.	IPC	Mill Diff.
174268	W.F.	4/17/57	-	43.0	42.7 -0.3	12.5	11.9 -0.6	104	111 + 7	344 ^a	317	335 ^a	-27	341	+ 6
174269	W.F.	4/17/57	-	42.9	42.3 -0.6	12.2	11.9 -0.3	104	108 + 4	325 ^a	295	333 ^a	-30	327	- 6
174417	W.F.	5/ 6/57	-	43.7	43.0 -0.7	12.7	12.5 -0.2	108	108 0	355	347	394 ^a	- 8	373	-21
174418	W.F.	5/ 6/57	-	43.7	42.9 -0.8	12.7	12.6 -0.1	108	108 0	357 ^a	343	369 ^a	-14	375	+ 6
174438	W.F.	5/15/57	-	43.1	42.6 -0.5	12.9	12.6 -0.3	106	107 + 1	347 ^a	329	349 ^a	-18	367	+18
174439	W.F.	5/15/57	-	43.2	42.6 -0.6	13.0	12.6 -0.4	103	103 + 5	347 ^a	325	357 ^a	-22	369	+12
174506	W.F.	5/21/57	-	43.0	42.2 -0.8	12.1	11.7 -0.4	116	114 - 2	366 ^a	339	380 ^a	-27	368	-12
174507	W.F.	5/21/57	-	42.6	42.3 -0.3	11.8	12.0 +0.2	114	113 - 1	365 ^a	345	371 ^a	-20	376	+ 5
Current Mill Average:				43.1	42.6 -0.5	12.5	12.2 -0.3	108	110 + 2	351	330	361	-21	362	+ 1

TABLE XXVI

MILL L -- 42-LB. LINERBOARD

174381	W.F.	5/ 2/57	1	42.2	42.0 -0.2	12.0	12.1 +0.1	114	108 - 6	343	365	391 ^a	+22	457	+66
174392	D.F.	5/ 3/57	1	42.6	43.1 +0.5	12.0	11.6 -0.4	106	109 + 3	355 ^a	414	401 ^a	+59	492	+91
174410	W.F.	5/ 8/57	1	42.1	42.3 +0.2	12.0	11.4 -0.6	108	109 + 1	336	363	387 ^a	+27	458	+71
174488	W.F.	5/15/57	1	41.8	41.6 -0.2	12.2	11.9 -0.3	110	106 - 4	355 ^a	350	399 ^a	- 5	455	+56
Current Mill Average:				42.2	42.2 0.0	12.0	11.8 -0.2	109	108 - 1	347	373	394	+26	466	+72

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXXVII

MILL N -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across
174298	W.F.	4/17/57	4	42.0	+0.2	11.0	10.9 -0.1	111	105 -6	333	299 -34
174299	W.F.	4/17/57	4	42.0	+0.2	11.0	10.7 -0.3	114	107 -7	337 ^a	296 -41
Current Mill Average:				42.0	+0.2	11.0	10.8 -0.2	113	106 -7	335	297 -38
										384	359 -25

TABLE XXXVIII

MILL N -- 42-LB. LINERBOARD

174326	W.F.	5/1/57	-	44.6	+0.4	12.5	11.8 -0.7	110	112	+2	364 ^a	393	+29	380 ^a	382	+2
174327	W.F.	5/2/57	-	45.7	-1.5	13.4	13.1 -0.3	111	106	-5	369 ^a	345	-24	406 ^a	415	+9
174328	W.F.	5/3/57	-	44.8	-0.3	13.2	12.9 -0.3	112	106	-6	351 ^a	344	-7	395 ^a	401	+6
174413	W.F.	5/8/57	-	42.2	+1.5	12.7	12.3 -0.4	101	106	+5	348 ^a	359	+11	369 ^a	403	+34
174414	W.F.	5/9/57	-	43.1	+1.2	12.8	12.4 -0.4	114	119	+5	357 ^a	353	-4	368 ^a	404	+36
174415	W.F.	5/10/57	-	44.4	-0.8	13.0	12.6 -0.4	114	104	-10	377 ^a	357	-20	381 ^a	371	-10
174427	W.F.	5/15/57	-	45.6	-0.5	13.5	12.8 -0.7	110	110	0	355 ^a	364	+9	391 ^a	389	-2
174428	W.F.	5/16/57	-	43.9	+1.4	13.3	12.8 -0.5	92	97	+5	403 ^a	376	-27	367 ^a	404	+37
174429	W.F.	5/17/57	-	43.6	+0.7	12.9	12.3 -0.6	108	108	0	342 ^a	337	-5	372 ^a	388	+16
Current Mill Average:				44.2	+0.2	13.0	12.6 -0.4	108	108	0	363	359	-4	381	395	+14

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XXIX

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. edge		Elmendorf Tear, g./sheet	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across

No Samples Submitted.

TABLE XL

MILL P -- 42-LB. LINERBOARD

174382	WFLS	4/24/57	1	43.4	42.7	-0.7	13.3	12.8	-0.5	112	107	-5	323	353	+30	366 ^a	413	+47
174383	WFLS	4/24/57	1	43.1	42.3	-0.8	13.4	12.3	-1.1	111	108	-3	323	347	+24	385 ^a	413	+28
Current Mill Average:				43.2	42.5	-0.7	13.3	12.6	-0.7	112	107	-5	323	350	+27	376	413	+37

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XII

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight,		Caliper, points		Bursting Strength, p.s.i. gage		In		Elmendorf Tear, g./sheet		Across	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Diff.	IPC	Mill Diff.
174272	WF1S	4/23/57	2	42.1	+1.4	13.3	13.2 -0.1	112	110 - 2	360	365	359 ^a	+ 5	390	-31
174273	WF1S	4/24/57	2	42.7	+1.1	13.3	13.2 -0.1	119	112 - 7	343	360	387 ^a	+17	435	+48
174300	WF1S	4/25/57	2	42.5	+1.2	13.3	13.2 -0.1	118	106 -12	355 ^a	372	380 ^a	+17	437	+57
174342	WF1S	5/ 1/57	2	42.3	+1.8	13.9	14.0 +0.1	115	108 - 7	345 ^a	358	381 ^a	+13	412	+31
174343	WF1S	5/ 2/57	2	41.6	+2.0	13.4	13.8 +0.4	110	104 - 6	309 ^a	344	347 ^a	+35	400	+53
174387	WF1S	5/ 7/57	2	44.2	+0.3	13.7	13.2 -0.5	112	102 -10	376 ^a	384	400 ^a	+ 8	409	+ 9
174416	WF1S	5/10/57	2	43.1	+0.9	13.4	13.1 -0.3	122	114 - 8	336 ^a	360	385 ^a	+24	418	+33
174433	WF1S	5/15/57	2	42.5	+1.1	13.3	12.5 -0.8	107	102 - 5	333 ^a	353	371 ^a	+20	387	+16
174512	WF1S	5/16/57	2	42.0	+0.8	13.1	13.0 -0.1	116	103 -13	327 ^a	349	349 ^a	+22	413	+64
174513	WF1S	5/20/57	2	41.4	+0.7	12.8	12.8 0.0	116	106 -10	335 ^a	328	361 ^a	- 7	378	+17
Current Mill Average:				42.4	+1.2	13.3	13.2 -0.1	115	107 - 8	342	357	372	+15	408	+36

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

Note: All "current mill average" data are calculated from the totals of the individual readings.

COMPARISON OF INSTITUTE AND MILL DATA--MAY 1 THROUGH MAY 31, 1957 (continued)

TABLE XLII

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		In Elmendorf Tear, g./sheet		Across	
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Diff.	IPC	Mill Diff.
174270	W.F.	4/21/57	2	41.7	+0.7	12.7	12.4 -0.3	109	108 - 1	299 ^a	338 +39	375 ^a	373 - 2
174271	W.F.	4/21/57	2	42.1	+0.4	12.5	12.4 -0.1	114	109 - 5	309 ^a	311 + 2	374 ^a	375 + 1
174390	W.F.	4/21/57	2	43.1	+0.9	12.5	12.2 -0.3	116	113 - 3	334	321 -13	397 ^a	393 - 4
174301	W.F.	4/26/57	2	43.8	+0.4	12.5	12.1 -0.4	123	116 - 7	325	343 +18	393 ^a	384 - 9
174302	W.F.	4/26/57	2	43.6	+0.3	12.6	12.2 -0.4	118	114 - 4	335 ^a	331 - 4	401 ^a	391 -10
174391	W.F.	4/28/57	2	42.6	+0.8	12.4	12.1 -0.3	102	112 +10	303 ^a	302 - 1	364 ^a	354 -10
Current Mill Average:				42.8	+0.6	12.5	12.2 -0.3	114	112 - 2	318	324 + 6	384	378 - 6

TABLE XLIII

MILL R -- 47-LB. DRUM LINERBOARD

No Samples Submitted

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
Note: All "current mill average" data are calculated from the totals of the individual readings.